

3/pats

Polypeptides F' of the hepatitis C virus, T epitopes,
and the diagnostic and therapeutic applications thereof

The present invention relates to a novel polypeptide of
5 the hepatitis C virus, derived from a reading frame
shift, that is useful in particular in prophylactic and
therapeutic immunization directed against this virus.

Hepatitis C is the main cause of hepatitis acquired by
10 transfusion. Hepatitis C can also be transmitted by
other percutaneous routes, for example by intravenous
drug injection. The risk of contamination among health
professionals is not, moreover, insignificant.

Hepatitis C differs from the other forms of liver
15 diseases associated with viruses, such as hepatitis A,
B or D. Infections with the hepatitis C virus (HCV) are
mainly chronic and result in liver diseases, such as
hepatitis, cirrhosis and carcinoma in a large number of
20 cases (5 to 20%).

Although the risk of virus transmission by transfusion
has decreased due to the setting up of screening assays
in the 1990s, the frequency of hepatitis C remains
25 high. By way of example, a recent study indicates that
there are, at this time, still thought to be 10 000 to
15 000 new cases of infection per year in France
(S. Deuffic and al., Hepatology 1999; 29: 1596-1601).
Currently, approximately 170 million individuals
30 throughout the world are chronically infected with HCV.
The high-risk populations are mainly hospital personnel
and intravenous drug users, but there are asymptomatic
blood donors who do not belong to these high-risk
groups and in whom circulating anti-HCV antibodies have
35 been found. For the latter, the route of infection has
not yet been identified.

HCV was the first hepatotropic virus isolated by means
of molecular biology techniques. The sequences of the

viral genome were cloned before the viral particle were visualized.

HCV belongs to a new genus of the family *Flaviviridae*,
5 the hepaciviruses. It is a positive, single-stranded
RNA virus of 9.5 kb that replicates by means of a
complementary RNA copy and the translation product of
which is a polyprotein precursor of approximately 3 000
amino acids. The 5' end of the HCV genome corresponds
10 to an untranslated region adjacent to the genes that
encode the structural proteins, the core protein of the
nucleocapsid, the two envelope glycoproteins, E1 and
E2, and a small protein called p7. The 5' untranslated
region and the core gene are relatively well conserved
15 in the various genotypes. The E1 and E2 envelope
proteins are encoded by regions that are more variable
from one isolate to another. The p7 protein is an
extremely hydrophobic protein that is thought to
constitute an ion channel. The 3' end of the HCV genome
20 contains the genes that encode the non-structural
proteins (NS2, NS3, NS4 and NS5) and a 3' noncoding
region that has a well conserved domain (Major ME,
Feinstone SM, Hepatology, June 1997, 25(6): 1527-1538).

25 At the current time, the most effective therapy for
treating hepatitis C combines pegylated interferon and
ribavirin (Manns MP and al., The Lancet, September 22,
2001, Vol. 358, 958-965). Although this therapy is
particularly effective in the case of patients infected
30 with viral strains belonging to genotypes 2 and 3, it
still has only a limited effect on genotypes 1a, 1b and
4 (Manns MP, above). Less than 50% of patients treated
become "long-term responders".

35 It is therefore necessary to develop a vaccine
composition that targets these "poor responder"
genotypes as a priority.

Several studies today show that the control of an

infection due to HCV, either naturally ("spontaneous resolution") or after treatment ("therapeutic resolution"), is associated with the induction or the potentiation of cell-mediated immune responses involving CD4⁺ T and CD8⁺ T lymphocytes (Ward S., and al., 2002, Clin. Exp. Immunol., 128: 195-203).

The aim of vaccines based on the use of peptides is generally to induce immune responses mediated by CD4⁺ T lymphocytes and/or CD8⁺ T lymphocytes.

The molecules of the major histocompatibility complex (MHC or otherwise called HLA in humans) are referred to as class I or class II. The class I molecules are expressed on virtually all nucleated cells and are capable of presenting epitopes or peptides to CD8⁺ cytotoxic T lymphocytes (CTLs). The class II molecules are capable of presenting epitopes to CD4⁺ T cells, but their expression is restricted to antigen-presenting cells.

Patent application WO 99/63941 describes a novel protein of the hepatitis C virus, of 196 amino acids, that is not encoded by a conventional open reading frame of the HCV virus. In fact, this protein is an alternative protein to the core protein of the virus exhibiting a reading frame shift at position +1 or +2. That application also describes two peptides of 13 amino acids derived from this novel protein, which contain B epitopes and are therefore useful in particular for the production of antibodies for diagnosis. No cell-mediated response is shown in that document.

Z. Xu and al. (Xu, Z. et al., 2001, EMBO J., 20(14), 3840-3848), J.L. Walewski, and al. (2001, RNA, 7, 710-721) and also Varaklioti et al. (2001, J. Biol. Chem., 20(17), 17713-17721) confirm this open reading frame shift within the core protein. In these articles, the

experiments described were carried out essentially *in vitro*, with the exception of preliminary assays using sera from patients carrying HCV. These preliminary assays refer to the presence of antibodies specific for
5 this novel alternative core protein, called protein F, in patients carrying HCV. These studies are focused on viral strains of genotype 1a.

None of these documents of the prior art either
10 describes or suggests the existence of cell-mediated responses specific for this novel protein F in patients carrying HCV.

The applicant has demonstrated, unexpectedly, a novel
15 polypeptide of 99 amino acids that induces a cell-mediated response in patients who are seropositive for HCV, and in particular the secretion of interleukin 10 (IL10), with or without production of gamma-interferon, and that is capable of inducing specific cellular
20 immune responses in patients infected with viral strains, in particular of genotypes 1b and 3, whatever the HLA typing of the patient, but preferably for HLA-A2 and B7 patients.

25 As this polypeptide is a fragment of the protein F, it was called polypeptide F'.

Thus, a subject of the present invention is a polypeptide F' that induces an immune response against the
30 hepatitis C virus, characterized in that it consists of 99 amino acids located between positions 43 and 141 of the polyprotein of the hepatitis C virus.

Of course, the expression "located between positions 43
35 and 141 of the polyprotein of the hepatitis C virus" is intended to mean positions 43 to 141 of the polyprotein encoded with a shift of +1 on the reading frame, as previously indicated for the protein F. This nomenclature will subsequently be used for the

positions with respect to the polyprotein of the virus.

A subject of the invention is also four particular T epitopes that are at least partially included in this
5 protein F', located at positions 40-48, 43-51, 50-58 and 73-81 of the HCV polyprotein, which epitopes induce an immune response, the nucleotide sequences encoding said proteins and said epitopes, the vectors that include these nucleotide sequences, and also the
10 microorganisms or host cells cotransformed with these vectors.

Finally, a subject of the invention is also the antibodies directed against the polypeptides and epitopes
15 of the invention, and also the use of the polypeptides, of the epitopes and of the antibodies, for preparing a drug intended to inhibit or prevent an infection caused by the hepatitis C virus, and also for preparing diagnostic compositions.

20 The polypeptides F', and also the epitopes of the invention, are capable, unexpectedly, of inducing a cell-mediated response in patients who are seropositive for HCV, and in particular the secretion of interleukin
25 10 (IL10), with or without production of gamma-interferon.

The polypeptides F' and epitopes were obtained from the Shimotono genotype 1b consensus sequence (EMBL D89872).

30 The polypeptides F' have 99 amino acids, located at positions 43 and 141 of the hepatitis C virus polyprotein.

35 Throughout the remainder of the text, the term "polypeptide" or "epitope" will of course be intended to mean the polypeptides and epitopes having the natural amino acid sequences, originating from any strain and isolate of HCV, as defined in the sequence listing, and

also the analogs, muteins and homologs thereof.

The epitopes are peptides that have approximately from 8 to 15 amino acids and the polypeptides are larger peptides, such that, in the definitions hereinafter, the term "peptide" will be used indifferently to denote an epitope or a polypeptide.

The terms "analogs" or "muteins" of a peptide is intended to mean the biologically active derivatives of the reference molecules that exhibit the desired activity, namely the ability to stimulate a cell-mediated immune response as defined above.

In general, the term "analog" refers to compounds that have a natural sequence and polypeptide structure exhibiting one or more amino acid additions, substitutions (generally conservative in terms of nature) and/or deletions relative to the natural molecule, provided that the modifications do not destroy the immunogenic activity. The term "mutein" is intended to mean the peptides having one or more elements that imitate the peptide ("peptoids"), such as those described in PCT patent application WO 91/04282. Preferably, the analog or the mutein has at least the same immunoactivity as the natural molecule. Methods for preparing polypeptide analogs and muteins are known to those skilled in the art and are described below.

The analogs that are particularly preferred include the substitutions that are conservative in nature, i.e. the substitutions that take place in a family of amino acids. Specifically, amino acids are generally divided up into 4 families, i.e. (1) acidic amino acids such as aspartate and glutamate, (2) basic amino acids such as lysine, arginine and histidine, (3) nonpolar amino acids such as alanine, leucine, isoleucine, proline, phenylalanine, methionine and tryptophan, and (4) uncharged polar amino acids such as glycine,

asparagine, glutamine, cysteine, serine, threonine and tyrosine. Phenylalanine, tryptophan and tyrosine are sometimes classified as aromatic amino acids. For example, it can reasonably be predicted that the isolated replacement of leucine with isoleucine or valine, of an aspartate with a glutamate, or of a threonine with a serine, or a similar conservative replacement of an amino acid with another amino acid that is structurally related, will have no major effect on the biological activity. Those skilled in the art will readily determine the regions of the peptide molecule of interest that can tolerate a change with reference to the Hopp/Woods and Kyte-Doolite plots, that are well known in the art.

The term "homology" is intended to mean the percentage of identity between two peptide molecules. Two amino acid sequences are "substantially homologous" to one another when the sequences exhibit at least 60%, preferably at least 75%, more preferably at least 80-85%, more preferably at least 90%, and even more preferably at least 95-98% or more, sequence identity over a defined length of the peptide molecules.

In general, the term "identity" refers to an exact correspondence amino acid by amino acid of two peptide sequences. The percentage identity can be determined by direct comparison of the sequence information between two molecules by aligning the sequences, counting the exact number of mismatches between the two aligned sequences, dividing by the length of the shortest sequence, and multiplying the result by 100. The percentage identity can also be determined using computer programs such as ALIGN, M.O. Dayhoff, in Atlas of Protein Sequence and Structure M.O. Dayhoff ed., 1981, 5 Suppl., 3: 482-489.

According to a particular embodiment of the invention, the polypeptides F' are derived from genotype 1b of HCV

and have the sequence SEQ ID No.1 below:

X₁WVCX₂X₃X₄X₅RLPSGX₆NX₇X₈X₉X₁₀X₁₁X₁₂LX₁₃X₁₄RX₁₅X₁₆X₁₇PRX₁₈GX₁₉G
X₂₀SX₂₁GX₂₂X₂₃GX₂₄SX₂₅X₂₆X₂₇RX₂₈X₂₉X₃₀GX₃₁DGSCX₃₂PX₃₃X₃₄X₃₅GLX₃₆GA
5 X₃₇X₃₈TPX₃₉X₄₀GX₄₁X₄₂X₄₃WVX₄₄SSX₄₅X₄₆X₄₇X₄₈X₄₉X₅₀X₅₁PX₅₂SWGX₅₃X₅₄R
X₅₅SX₅₆,

in which

X₁ is G, D, E, V or S, X₂ is A or V, X₃ is R, H or Q, X₄
is L, R, P, S or G, X₅ is G or E, X₆ is R, L or H, X₇ is
10 L or P, X₈ is V, E or A, X₉ is E, V, D or G, X₁₀ is G or
D, X₁₁ is D or V, X₁₂ is N or S, X₁₃ is S or F, X₁₄ is P
or Q, X₁₅ is L, H, R, F, P or C, X₁₆ is A, V or I, X₁₇ is
G, S, D, N, I or V, X₁₈ is A, V or E, X₁₉ is P, S or T,
X₂₀ is L, P, H or R, X₂₁ is P or L, X₂₂ is T or I, X₂₃ is
15 L, P or H, X₂₄ is P or L, X₂₅ is M or T, X₂₆ is A, V or
P, X₂₇ is M, I or T, X₂₈ is A or V, X₂₉ is W, A, L or V,
X₃₀ is G or D, X₃₁ is Q, L or R, X₃₂ is H, L, P or R, X₃₃
is V, A, E, K or T, X₃₄ is A or V, X₃₅ is L, R, H or P,
X₃₆ is V, A, I or G, X₃₇ is P or L, X₃₈ is R, Q, L, M, T,
20 E or P, X₃₉ is G or D, X₄₀ is V, A or G, X₄₁ is R or H,
X₄₂ is V or A, X₄₃ is I or T, X₄₄ is R, G or K, X₄₅ is I
or T, X₄₆ is P or L, X₄₇ is S or L, X₄₈ is H or R, X₄₉ is
A or V, X₅₀ is A, V or G, X₅₁ is S or L, X₅₂ is T or I,
X₅₃ is T or I, X₅₄ is F, Y or S, X₅₅ is S or L and X₅₆ is
25 A, V, G or H.

Preferably, the polypeptide F' is chosen from the
following polypeptides:

- the polypeptide of sequence SEQ ID No.2 which
30 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
35 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S

5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.3 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is V, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

15 X₄₄ is K, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S

and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.4 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

20 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

25 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S

and X₅₆ is A,

30 - the polypeptide of sequence SEQ ID No.5 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,

35 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is L,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
X₄₄ is K, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.6 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is V, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
10 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is L,
15 X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.7 which
20 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is V, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
25 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
30 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.8 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
35 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is A, X₃₇ is L,
X₃₈ is P, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
5 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.9 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
10 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
15 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

20 - the polypeptide of sequence SEQ ID No.10 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
25 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is L, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
30 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.11 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is H, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
35 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is F,

X₁₄ is P, X₁₅ is L, X₁₆ is V, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
5 X₃₈ is L, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.12 which
10 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
15 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is T, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
20 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.13 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
25 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
30 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.14 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
35 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is A, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
5 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

10 - the polypeptide of sequence SEQ ID No.15 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,
15 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
20 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.16 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
25 X₈ is A, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is I, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
30 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is L, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.17 which
35 corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is A, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is I, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
5 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is R, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is L, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
10 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.18 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
V, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is F,
15 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is L, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
20 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.19 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
25 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
30 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.20 which corresponds to the sequence SEQ ID No.1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, 5 X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T, 10 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.21 which corresponds to the sequence SEQ ID No.1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, 15 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, 20 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

25 - the polypeptide of sequence SEQ ID No.22 which corresponds to the sequence SEQ ID No.1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P, 30 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is P, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.23 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

5 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is P, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
10 X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

15 - the polypeptide of sequence SEQ ID No.24 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
20 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is V, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is A, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A,
25 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.25 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
35 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.26 which
5 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
10 X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is G, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
15 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.27 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
20 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
25 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.28 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
30 S, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is P, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
35 X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

5 - the polypeptide of sequence SEQ ID No.29 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
10 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
15 X₅₀ is G, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.30 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
20 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is G, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
25 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is G, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.31 which
30 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
35 X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L

5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.32 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is I,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
15 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.33 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

20 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is H, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
25 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is R, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

30 - the polypeptide of sequence SEQ ID No.34 which
corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is G, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is A, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is V, X₁₈ is E, X₁₉ is P,
35 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is L,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.35 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
10 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
15 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.36 which
20 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
25 X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is Q, X₄₉ is V,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
30 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.37 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
35 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is A, X₄₁ is R, X₄₂ is V, X₄₃ is I,
5 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.38 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
10 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
15 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is A, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is G, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

20 - the polypeptide of sequence SEQ ID No.39 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
25 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
30 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.40 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
35 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is L, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
5 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.41 which
10 corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is L, X₂₅ is M,
15 X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is R, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
20 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.42 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
25 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is L, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is R, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
30 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.43 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
35 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
5 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

10 - the polypeptide of sequence SEQ ID No.44 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
15 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
20 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.45 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
25 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is L, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
30 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.46 which
35 corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
5 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is I, X₅₄ is F, X₅₅ is S
10 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.47 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
15 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
20 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is I, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.48 which
corresponds to the sequence SEQ ID No.1 in which X₁ is
25 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is Q, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
30 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.49 which corresponds to the sequence SEQ ID No.1 in which X₁ is G, X₂ is V, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, 5 X₁₄ is Q, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T, 10 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.50 which corresponds to the sequence SEQ ID No.1 in which X₁ is 15 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, 20 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

25 - the polypeptide of sequence SEQ ID No.51 which corresponds to the sequence SEQ ID No.1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is V, X₁₇ is D, X₁₈ is A, X₁₉ is P, 30 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.52 which corresponds to the sequence SEQ ID No.1 in which X₁ is

5 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
10 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

15 - the polypeptide of sequence SEQ ID No.53 which corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is V, X₁₉ is P,
20 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
25 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.54 which corresponds to the sequence SEQ ID No.1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is P, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is L, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
35 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.55 which
5 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
10 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
15 and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.56 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
20 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is P, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
25 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.57 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
30 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
35 X₃₂ is H, X₃₃ is K, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is E, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

5 - the polypeptide of sequence SEQ ID No.58 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
10 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
15 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.59 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
20 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is H, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
25 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID No.60 which
30 corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
35 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°61 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is S, X₅ is G, X₆ is R, X₇ is P,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
15 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°62 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
20 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
25 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

30 - the polypeptide of sequence SEQ ID N°63 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
35 X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is R, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°64 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
10 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is T,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is V, X₃₅ is P, X₃₆ is V, X₃₇ is P,
15 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°65 which
20 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is R, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
25 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is I, X₅₄ is F, X₅₅ is S
30 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°66 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
35 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is L, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
5 X₄₄ is R, X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°67 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
10 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
15 X₃₂ is L, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

20 - the polypeptide of sequence SEQ ID N°68 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
25 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
30 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°69 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
35 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
5 X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°70 which
10 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
15 X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
20 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°71 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
25 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is I, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
30 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°72 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
35 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
5 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is P, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is A,

10 - the polypeptide of sequence SEQ ID N°73 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
15 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
20 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°74 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
25 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
30 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°75 which
35 corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
5 X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is V, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
10 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°76 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
15 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is T, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
20 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°77 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
25 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
30 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is T, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°78 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is T, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°79 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°80 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°81 which corresponds to the sequence SEQ ID N°1 in which X₁ is

5 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
10 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

15 - the polypeptide of sequence SEQ ID N°82 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
20 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
25 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°83 which corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
35 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°84 which
5 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
10 X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
15 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°85 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
20 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
25 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°86 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
30 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
35 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L
and X₅₆ is A,

5 - the polypeptide of sequence SEQ ID N°87 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
10 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
15 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°88 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is Q, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
20 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is P, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is V, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is D, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
25 X₃₈ is L, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°89 which
30 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
35 X₂₆ is V, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is L,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S

5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°90 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is V, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is V, X₂₇ is I, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is P, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
15 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is V, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°91 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
20 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
25 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

30 - the polypeptide of sequence SEQ ID N°92 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
35 X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is P, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°93 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
10 X₈ is A, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is H, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
15 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°94 which
20 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
25 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
30 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°95 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is R, X₅ is G, X₆ is R, X₇ is L,
X₈ is L, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
35 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
5 X₄₄ is K, X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°96 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
10 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
15 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is K, X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is A,

20 - the polypeptide of sequence SEQ ID N°97 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
25 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is K, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
30 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°98 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is R, X₅ is G, X₆ is R, X₇ is L,
35 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is P, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
5 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°99 which
10 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
15 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is G, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
20 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°100 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
25 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
30 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is G, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is G,

- the polypeptide of sequence SEQ ID N°101 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
35 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is F, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
5 X₃₂ is L, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

10 - the polypeptide of sequence SEQ ID N°102 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
15 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is L, X₃₃ is A, X₃₄ is A, X₃₅ is H, X₃₆ is V, X₃₇ is P,
X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
20 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°103 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
25 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is V, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
30 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°104 which
35 corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
5 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
10 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°105 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
15 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is H, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is P, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
20 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°106 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
25 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is L, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is H, X₂₄ is P, X₂₅ is T,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
30 X₃₂ is P, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is A, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°107 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, 5 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is D, X₃₁ is R, X₃₂ is P, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, 10 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°108 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, 15 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is D, X₃₁ is Q, 20 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is T, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

25 - the polypeptide of sequence SEQ ID N°109 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, 30 X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is D, X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is L, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°110 which corresponds to the sequence SEQ ID N°1 in which X₁ is

5 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
10 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is L, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S and X₅₆ is A,

15 - the polypeptide of sequence SEQ ID N°111 which corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is P, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
20 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is L, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
25 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°112 which corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is I, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
35 X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°113 which
5 corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T,
10 X₂₆ is P, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is P, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is T, X₄₆ is P, X₄₇ is P, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
15 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°114 which
corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is Q, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
20 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is I, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is T, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is M, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
25 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is L, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°115 which
corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is T, X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
35 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,

X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

5 - the polypeptide of sequence SEQ ID N°116 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is T,
10 X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P, X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,
15 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°117 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
20 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is T, X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
25 X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is F, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°118 which
30 corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
35 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is K, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°119 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is S,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
15 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°120 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
20 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
25 X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

30 - the polypeptide of sequence SEQ ID N°121 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
35 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is I, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°122 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
10 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is F,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
15 X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°123 which
20 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
25 X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
30 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°124 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
35 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,

X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
5 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°125 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
10 G, X₂ is A, X₃ is R, X₄ is P, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
15 X₃₂ is H, X₃₃ is T, X₃₄ is A, X₃₅ is P, X₃₆ is G, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is G,

20 - the polypeptide of sequence SEQ ID N°126 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
25 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is T, X₃₄ is A, X₃₅ is P, X₃₆ is G, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
30 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°127 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
35 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is T, X₃₄ is A, X₃₅ is P, X₃₆ is G, X₃₇ is P,
5 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°128 which
10 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
15 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
20 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°129 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is V, X₉ is A, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
25 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
30 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°130 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
35 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
5 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is V,

10 - the polypeptide of sequence SEQ ID N°131 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is P, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,
15 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
20 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°132 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is S, X₅ is G, X₆ is R, X₇ is L,
25 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V, X₃₇ is P,
30 X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°133 which
35 corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is V, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
5 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is P, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
10 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°134 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
15 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is P, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is E, X₃₄ is A, X₃₅ is P, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
20 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°135 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
25 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
30 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°136 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is I, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°137 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is V, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is L and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°138 which corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°139 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

5 G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is H, X₇ is L,
X₈ is V, X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is A, X₁₉ is P,
X₂₀ is P, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
10 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

15 - the polypeptide of sequence SEQ ID N°140 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
20 X₂₀ is L, X₂₁ is R, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,
25 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is V,

- the polypeptide of sequence SEQ ID N°141 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is P, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is A, X₃₇ is P,
35 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I,

X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°142 which
5 corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is P, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M,
10 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is M, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is V, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
15 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°143 which
corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is P, X₅ is G, X₆ is R, X₇ is L, X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
20 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is A, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is I, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q, X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is I, X₃₇ is P, X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
25 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₅ is S
and X₅₆ is V,

- the polypeptide of sequence SEQ ID N°144 which
corresponds to the sequence SEQ ID N°1 in which X₁ is G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
30 X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S, X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P, X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is P, X₂₄ is P, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
35 X₃₂ is H, X₃₃ is V, X₃₄ is A, X₃₅ is L, X₃₆ is V, X₃₇ is P,

X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

5 - the polypeptide of sequence SEQ ID N°145 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is V, X₁₉ is P,
10 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is H, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is V, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is V, X₃₄ is D, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
15 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°146 which
corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
20 X₈ is V, X₉ is A, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is G, X₁₈ is V, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is P, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is R,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
25 X₃₈ is R, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°147 which
30 corresponds to the sequence SEQ ID N°1 in which X₁ is
G, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is S, X₁₈ is A, X₁₉ is P,
X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
35 X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is P, X₃₉ is G, X₄₀ is V, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is V,
X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S

5 and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°148 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

R, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

10 X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is V, X₁₉ is P,

X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is R, X₃₉ is G, X₄₀ is A, X₄₁ is R, X₄₂ is A, X₄₃ is I,

15 X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A,

- the polypeptide of sequence SEQ ID N°149 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

20 R, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,

X₈ is V, X₉ is E, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,
X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is D, X₁₈ is V, X₁₉ is P,

X₂₀ is L, X₂₁ is L, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,
X₂₆ is A, X₂₇ is M, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,

25 X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,

X₃₈ is R, X₃₉ is G, X₄₀ is G, X₄₁ is R, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A,

X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A, and

30 - the polypeptide of sequence SEQ ID N°150 which
corresponds to the sequence SEQ ID N°1 in which X₁ is

S, X₂ is A, X₃ is R, X₄ is L, X₅ is G, X₆ is R, X₇ is L,
X₈ is V, X₉ is G, X₁₀ is G, X₁₁ is D, X₁₂ is N, X₁₃ is S,

X₁₄ is P, X₁₅ is L, X₁₆ is A, X₁₇ is N, X₁₈ is V, X₁₉ is P,

35 X₂₀ is L, X₂₁ is P, X₂₂ is T, X₂₃ is L, X₂₄ is P, X₂₅ is M,

X₂₆ is A, X₂₇ is T, X₂₈ is A, X₂₉ is W, X₃₀ is G, X₃₁ is Q,
X₃₂ is H, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V, X₃₇ is P,
X₃₈ is Q, X₃₉ is G, X₄₀ is V, X₄₁ is H, X₄₂ is A, X₄₃ is I,
X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is V,
5 X₅₀ is A, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₅ is S
and X₅₆ is A.

Preferably, the polypeptide F' of the invention is the
polypeptide of sequence SEQ ID No.2.

10

According to another embodiment of the invention, the
polypeptides F' are derived from genotype 3 of HCV and
have the sequence SEQ ID No.151 below:

15 X₁WVCX₂X₃X₄X₅X₅₇LX₅₈X₅₉X₆₀X₆X₆₁X₇AX₉X₁₀X₁₁X₁₂X₆₂X₁₃PX₆₃X₁₅X₁₆X₁₇X₆₄
X₆₅X₁₈X₆₆PGX₂₀SX₂₁GTX₂₃GX₂₄X₆₇X₂₅X₂₆X₂₇RAX₂₉X₃₀X₆₈X₃₁X₆₉GX₇₀CX₃₂X₇₁
X₃₃X₃₄X₃₅X₇₂X₇₃X₃₆GX₇₄X₃₇X₃₈TPGX₄₀X₇₅X₄₁AX₄₃X₇₆X₇₇X₄₄SSX₄₅X₄₆X₄₇X₄₈
X₄₉X₅₀ X₅₁X₇₈X₅₂SWGX₅₃X₅₄RSX₇₉X₅₆,

20 in which

X₁ is D, N, S, Y or G, X₂ is A or V, X₃ is R, Q, K or L,
X₄ is R, Y, C, F, H, L or P, X₅ is V, A or T, X₆ is H, R
or Q, X₇ is L or P, X₉ is D, V, N, R or T, X₁₀ is G, D
or S, X₁₁ is D, V, A, G or E, X₁₂ is S, N or T, X₁₃ is S,
25 P or F, X₁₅ is R, H or L, X₁₆ is V or A, X₁₇ is G, R, E,
H or V, X₁₈ is A or D, X₂₀ is L, P or R, X₂₁ is P or L,
X₂₃ is L or P, X₂₄ is P or L, X₂₅ is M or T, X₂₆ is V, G,
A or E, X₂₇ is M, T or I, X₂₉ is A or V, X₃₀ is G, V or
D, X₃₁ is Q or R, X₃₂ is P or L, X₃₃ is A or V, X₃₄ is A
30 or V, X₃₅ is P or L, X₃₆ is L, A, V, R, I or P, X₃₇ is Q,
K or P, X₃₈ is M or T, X₄₀ is V, G, D, E or A, X₄₁ is P,
H or L, X₄₃ is I or T, X₄₄ is R or K, X₄₅ is I or T, X₄₆
is P or L, X₄₇ is S or L, X₄₈ is R or H, X₄₉ is A or V,
X₅₀ is D, G, A or V, X₅₁ is S or L, X₅₂ is T, I or A, X₅₃
35 is T or I, X₅₄ is F or S, X₅₆ is A or V, X₅₇ is K, R or

N, X₅₈ is L, P or Q, X₅₉ is S or N, X₆₀ is G or D, X₆₁ is S or N, X₆₂ is L or P, X₆₃ is R or G, X₆₄ is A, P or L, X₆₅ is R, K, E or T, X₆₆ is G or D, X₆₇ is S, Y or F, X₆₈ is G or W, X₆₉ is G or D, X₇₀ is S or F, X₇₁ is P, H, R
5 or L, X₇₂ is V, A, D or G, X₇₃ is H, L, P, Q or R, X₇₄ is A or P, X₇₅ is G or D, X₇₆ is W or L, X₇₇ is V or A, X₇₈ is P or L and X₇₉ is S, L or Q.

Preferably, the polypeptide F' is chosen from the
10 following polypeptides :

- the polypeptide of sequence SEQ ID N°152 which corresponds to the sequence SEQ ID N°151 in which X₁ is D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L, X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
15 X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L, X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is M, X₂₉ is A, X₃₀ is G, X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L, X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is I, X₄₄ is R, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
20 X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is K, X₅₈ is L, X₅₉ is S, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R, X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G, X₇₀ is S, X₇₁ is P, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G, X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°153 which corresponds to the sequence SEQ ID N°151 in which X₁ is D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L, X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R, X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
30 X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G, X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is P, X₃₇ is Q, X₃₈ is M, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K, X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D, X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
35 X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,

X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°154 which
5 corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is P, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
10 X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is L,
X₃₇ is Q, X₃₈ is M, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
15 X₆₄ is A, X₆₅ is T, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°155 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
20 D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is P,
X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is R, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is M, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
25 X₃₇ is Q, X₃₈ is M, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is V, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is E, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
30 X₇₀ is S, X₇₁ is R, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°156 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is R, X₇ is L,
35 X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,

X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is T, X₄₀ is D, X₄₁ is P, X₄₃ is I, X₄₄ is K,
5 X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
10 X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°157 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is D, X₁₁ is G, X₁₂ is S, X₁₃ is S, X₁₅ is R,
15 X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is M, X₄₀ is D, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
20 X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is R, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

25 - the polypeptide of sequence SEQ ID N°158 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is H,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is L,
30 X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is T, X₄₀ is D, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
35 X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,

X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°159 which
5 corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
10 X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is T, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is V,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
15 X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is Q, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°160 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
20 D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is D, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is M, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
25 X₃₇ is Q, X₃₈ is T, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
30 X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°161 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
35 X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,

X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is M, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is K,
5 X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is A,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is K, X₆₆ is D, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
10 X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°162 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
15 X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is L,
X₃₇ is K, X₃₈ is M, X₄₀ is G, X₄₁ is P, X₄₃ is T, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
20 X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is R, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is A, X₇₈ is P and X₇₉ is S,

25 - the polypeptide of sequence SEQ ID N°163 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is L,
30 X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is L,
X₃₇ is Q, X₃₈ is T, X₄₀ is G, X₄₁ is P, X₄₃ is I, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
35 X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,

X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is H, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°164 which
5 corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is R, X₄ is R, X₅ is V, X₆ is R, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is E, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is P, X₂₁ is L, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is M, X₂₉ is A, X₃₀ is G,
10 X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is I,
X₃₇ is Q, X₃₈ is M, X₄₀ is D, X₄₁ is P, X₄₃ is I, X₄₄ is K,
X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is S, X₅₆ is A, X₅₇ is K,
X₅₈ is L, X₅₉ is N, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
15 X₆₄ is A, X₆₅ is K, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is H, X₇₂ is V, X₇₃ is Q, X₇₄ is P, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°165 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
20 D, X₂ is A, X₃ is Q, X₄ is L, X₅ is V, X₆ is H, X₇ is P,
X₉ is D, X₁₀ is G, X₁₁ is D, X₁₂ is S, X₁₃ is F, X₁₅ is H,
X₁₆ is A, X₁₇ is R, X₁₈ is D, X₂₀ is R, X₂₁ is L, X₂₃ is P,
X₂₄ is P, X₂₅ is M, X₂₆ is V, X₂₇ is T, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is L, X₃₃ is A, X₃₄ is A, X₃₅ is P, X₃₆ is V,
25 X₃₇ is P, X₃₈ is T, X₄₀ is E, X₄₁ is P, X₄₃ is I, X₄₄ is R,
X₄₅ is T, X₄₆ is L, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is G,
X₅₁ is S, X₅₂ is I, X₅₃ is I, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is Q, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is E, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is G,
30 X₇₀ is F, X₇₁ is L, X₇₂ is D, X₇₃ is R, X₇₄ is A, X₇₅ is G,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°166 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is F, X₅ is V, X₆ is Q, X₇ is P,
35 X₉ is T, X₁₀ is G, X₁₁ is G, X₁₂ is S, X₁₃ is S, X₁₅ is H,

X₁₆ is V, X₁₇ is G, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is L,
X₂₄ is L, X₂₅ is M, X₂₆ is A, X₂₇ is M, X₂₉ is V, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is L,
X₃₇ is P, X₃₈ is M, X₄₀ is E, X₄₁ is L, X₄₃ is T, X₄₄ is K,
5 X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is K,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is F, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is P, X₇₂ is G, X₇₃ is H, X₇₄ is A, X₇₅ is G,
10 X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,
- the polypeptide of sequence SEQ ID N°167 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
Y, X₂ is A, X₃ is L, X₄ is H, X₅ is V, X₆ is H, X₇ is L,
X₉ is R, X₁₀ is G, X₁₁ is G, X₁₂ is S, X₁₃ is S, X₁₅ is R,
15 X₁₆ is V, X₁₇ is V, X₁₈ is D, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is T, X₂₆ is V, X₂₇ is M, X₂₉ is A, X₃₀ is G,
X₃₁ is R, X₃₂ is P, X₃₃ is A, X₃₄ is V, X₃₅ is L, X₃₆ is A,
X₃₇ is Q, X₃₈ is M, X₄₀ is E, X₄₁ is P, X₄₃ is I, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A, X₅₀ is G,
20 X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is P, X₇₂ is G, X₇₃ is R, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,
25 - the polypeptide of sequence SEQ ID N°168 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is Y, X₅ is V, X₆ is R, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is V, X₁₂ is S, X₁₃ is S, X₁₅ is H,
X₁₆ is A, X₁₇ is R, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is L,
30 X₂₄ is P, X₂₅ is T, X₂₆ is E, X₂₇ is M, X₂₉ is V, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is V, X₃₅ is L, X₃₆ is I,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is T, X₄₄ is R,
X₄₅ is T, X₄₆ is P, X₄₇ is L, X₄₈ is H, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
35 X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,

X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is F, X₇₁ is P, X₇₂ is V, X₇₃ is L, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°169 which
5 corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is Y, X₅ is V, X₆ is R, X₇ is L,
X₉ is N, X₁₀ is S, X₁₁ is V, X₁₂ is T, X₁₃ is S, X₁₅ is L,
X₁₆ is A, X₁₇ is R, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is T, X₂₆ is G, X₂₇ is I, X₂₉ is V, X₃₀ is G,
10 X₃₁ is Q, X₃₂ is P, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is T, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is V, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is S, X₆₂ is L, X₆₃ is R,
15 X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is W, X₆₉ is D,
X₇₀ is S, X₇₁ is P, X₇₂ is A, X₇₃ is L, X₇₄ is A, X₇₅ is D,
X₇₆ is L, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°170 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
20 N, X₂ is A, X₃ is K, X₄ is Y, X₅ is V, X₆ is H, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is V, X₁₂ is S, X₁₃ is P, X₁₅ is H,
X₁₆ is A, X₁₇ is R, X₁₈ is A, X₂₀ is P, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is T, X₂₆ is G, X₂₇ is M, X₂₉ is V, X₃₀ is V,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is V, X₃₅ is L, X₃₆ is A,
25 X₃₇ is K, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is T, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is L, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is D, X₆₁ is N, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
30 X₇₀ is S, X₇₁ is P, X₇₂ is A, X₇₃ is P, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°171 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is Y, X₅ is V, X₆ is R, X₇ is L,
35 X₉ is D, X₁₀ is G, X₁₁ is V, X₁₂ is S, X₁₃ is S, X₁₅ is H,

X₁₆ is A, X₁₇ is H, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is M, X₂₉ is A, X₃₀ is V,
X₃₁ is Q, X₃₂ is P, X₃₃ is V, X₃₄ is V, X₃₅ is L, X₃₆ is V,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is T, X₄₄ is K,
5 X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is K,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is F, X₇₁ is P, X₇₂ is A, X₇₃ is L, X₇₄ is A, X₇₅ is D,
10 X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°172 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is C, X₅ is V, X₆ is R, X₇ is L,
X₉ is D, X₁₀ is G, X₁₁ is G, X₁₂ is S, X₁₃ is S, X₁₅ is H,
15 X₁₆ is A, X₁₇ is E, X₁₈ is A, X₂₀ is P, X₂₁ is L, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is M, X₂₉ is V, X₃₀ is G,
X₃₁ is Q, X₃₂ is L, X₃₃ is V, X₃₄ is A, X₃₅ is P, X₃₆ is V,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is H, X₄₃ is T, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is V, X₅₀ is D,
20 X₅₁ is S, X₅₂ is I, X₅₃ is T, X₅₄ is F, X₅₆ is V, X₅₇ is N,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,
X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is S, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is P, X₇₂ is A, X₇₃ is L, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is L,

25 - the polypeptide of sequence SEQ ID N°173 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
D, X₂ is A, X₃ is Q, X₄ is Y, X₅ is V, X₆ is H, X₇ is P,
X₉ is D, X₁₀ is G, X₁₁ is A, X₁₂ is S, X₁₃ is S, X₁₅ is R,
X₁₆ is A, X₁₇ is H, X₁₈ is A, X₂₀ is L, X₂₁ is L, X₂₃ is P,
30 X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is T, X₂₉ is A, X₃₀ is V,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is V, X₃₅ is P, X₃₆ is A,
X₃₇ is Q, X₃₈ is M, X₄₀ is A, X₄₁ is P, X₄₃ is T, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is L, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is I, X₅₄ is F, X₅₆ is A, X₅₇ is R,
35 X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is L, X₆₃ is R,

X₆₄ is A, X₆₅ is R, X₆₆ is G, X₆₇ is F, X₆₈ is G, X₆₉ is D,
X₇₀ is S, X₇₁ is P, X₇₂ is D, X₇₃ is P, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is L and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°174 which
5 corresponds to the sequence SEQ ID N°151 in which X₁ is
S, X₂ is V, X₃ is Q, X₄ is C, X₅ is A, X₆ is R, X₇ is L,
X₉ is V, X₁₀ is G, X₁₁ is A, X₁₂ is N, X₁₃ is S, X₁₅ is R,
X₁₆ is A, X₁₇ is E, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is M, X₂₉ is A, X₃₀ is G,
10 X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is R,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is H, X₄₃ is I, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is R, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is I, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is P, X₆₃ is G,
15 X₆₄ is P, X₆₅ is R, X₆₆ is G, X₆₇ is Y, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is R, X₇₂ is A, X₇₃ is H, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S,

- the polypeptide of sequence SEQ ID N°175 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
20 G, X₂ is V, X₃ is Q, X₄ is C, X₅ is T, X₆ is R, X₇ is L,
X₉ is V, X₁₀ is G, X₁₁ is A, X₁₂ is N, X₁₃ is S, X₁₅ is R,
X₁₆ is A, X₁₇ is E, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is M, X₂₉ is A, X₃₀ is G,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is R,
25 X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is I, X₄₄ is R,
X₄₅ is I, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is A, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is P, X₆₃ is G,
X₆₄ is L, X₆₅ is R, X₆₆ is G, X₆₇ is Y, X₆₈ is G, X₆₉ is D,
30 X₇₀ is S, X₇₁ is R, X₇₂ is A, X₇₃ is H, X₇₄ is A, X₇₅ is D,
X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is S, and

- the polypeptide of sequence SEQ ID N°176 which
corresponds to the sequence SEQ ID N°151 in which X₁ is
S, X₂ is V, X₃ is R, X₄ is C, X₅ is A, X₆ is H, X₇ is L,
35 X₉ is V, X₁₀ is G, X₁₁ is A, X₁₂ is S, X₁₃ is S, X₁₅ is R,

X₁₆ is A, X₁₇ is E, X₁₈ is A, X₂₀ is L, X₂₁ is P, X₂₃ is L,
X₂₄ is P, X₂₅ is M, X₂₆ is G, X₂₇ is M, X₂₉ is A, X₃₀ is D,
X₃₁ is Q, X₃₂ is P, X₃₃ is A, X₃₄ is A, X₃₅ is L, X₃₆ is R,
X₃₇ is Q, X₃₈ is M, X₄₀ is V, X₄₁ is P, X₄₃ is I, X₄₄ is R,
5 X₄₅ is T, X₄₆ is P, X₄₇ is S, X₄₈ is H, X₄₉ is A, X₅₀ is D,
X₅₁ is S, X₅₂ is T, X₅₃ is T, X₅₄ is F, X₅₆ is A, X₅₇ is R,
X₅₈ is P, X₅₉ is S, X₆₀ is G, X₆₁ is N, X₆₂ is P, X₆₃ is G,
X₆₄ is P, X₆₅ is R, X₆₆ is G, X₆₇ is Y, X₆₈ is G, X₆₉ is G,
X₇₀ is S, X₇₁ is P, X₇₂ is A, X₇₃ is H, X₇₄ is A, X₇₅ is D,
10 X₇₆ is W, X₇₇ is V, X₇₈ is P and X₇₉ is Q.

Preferably, the polypeptide F' is the polypeptide of
sequence SEQ ID No.152.

The applicant has also isolated, unexpectedly, from
15 these polypeptides F', 4 T epitopes of 9 amino acids,
that induce an immune response against the hepatitis C
virus.

Thus, another subject of the invention consists of an
20 epitope derived from the protein sequence of the
polypeptide F', characterized in that it induces an
immune response against the hepatitis C virus and
consists of 9 amino acids located between positions 40
and 48 of the hepatitis C virus polyprotein.

25 The first epitope isolated, which will subsequently be
called A9L, is partially included in the polypeptide F'
in the sense that it begins at position 40. It
therefore exhibits a shift of two amino acids relative
30 to the polypeptide F'.

According to a particular embodiment, the A9L epitope
has one of the sequences SEQ ID No.177 to SEQ ID
No.235, preferably one of the sequences SEQ ID No.177,
35 SEQ ID Nos.183 to 186, SEQ ID Nos.188 to 193, SEQ ID
No.201, SEQ ID No.202, SEQ ID No.217, SEQ ID No.218,
SEQ ID No.227, SEQ ID No.228 and SEQ ID No.235, the

epitope of sequence SEQ ID No.177 being particularly preferred.

5 According to another subject, the invention relates to the second epitope, subsequently called W9L, characterized in that it induces an immune response specific for the hepatitis C virus and consists of 9 amino acids located between positions 43 and 51 of the hepatitis C virus polyprotein.

10 According to a particular embodiment, the W9L epitope has one of the sequences SEQ ID No.236 to SEQ ID No.283, preferably one of the sequences SEQ ID No.236, SEQ ID No.241, SEQ ID Nos.248-251, SEQ ID No.253, SEQ
15 ID No.255, SEQ ID No.256 and SEQ ID No.259, the epitope of sequence SEQ ID No.236 being particularly preferred.

20 According to yet another subject, the invention relates to a third epitope, called R9V, characterized in that it induces an immune response against the hepatitis C virus and consists of 9 amino acids located between positions 50 and 58 of the hepatitis C virus polyprotein.

25 According to a particular embodiment, the R9V epitope has one of the sequences SEQ ID No.284 to SEQ ID No.358, preferably one of the sequences SEQ ID No.284, SEQ ID No.291, SEQ ID Nos.293 to 295 and SEQ ID Nos.299 to 301, the epitope of SEQ ID No.284 being particularly
30 preferred.

35 According to yet another subject, the invention relates to a fourth epitope, called G9L, characterized in that it induces an immune response against the hepatitis C virus and consists of 9 amino acids between positions 73 and 81 of the hepatitis C virus polyprotein.

According to a particular embodiment, the G9L epitope has one of the sequences SEQ ID No. 359 to SEQ ID

No.434, preferably one of the sequences SEQ ID No. 359, SEQ ID Nos.383 to 386, SEQ ID Nos.388 to 393 and SEQ ID Nos.396 to 400, the epitope of sequence SEQ ID No.359 being particularly preferred.

5

The present invention also relates to the nucleotide sequences encoding any one of the polypeptides F' as defined by the sequences SEQ ID Nos. 1 to 176, and also to the nucleotide sequences encoding any one of the
10 epitopes as defined by the sequences SEQ ID Nos.177 to 434.

The polypeptides F' and epitopes of the invention can be obtained by means of the genetic engineering
15 technique, which comprises the steps consisting in:

- culturing a microorganism or eukaryotic cells transformed with a nucleotide sequence according to the invention, and
- recovering the peptide produced by said microorganism
20 or said eukaryotic cells.

This technique is well known to those skilled in the art. For further details relating thereto, reference may be made to the following work: Recombinant DNA
25 Technology I, Editors Ales Prokop, Raskesh K Bajpai; Annals of the New York Academy of Sciences, Volume 646, 1991.

The polypeptides F' and epitopes of the invention can
30 also be prepared by conventional peptide syntheses that are well known to those skilled in the art.

The nucleotide sequences according to the invention can be prepared by chemical synthesis and genetic
35 engineering using the techniques well known to those skilled in the art and described, for example, in J. Sambrook et al., Molecular Cloning: A Laboratory Manual, 1989.

The nucleotide sequences of the invention can be inserted into expression vectors in order to prepare the polypeptides F' and epitopes of the invention.

5 Thus, another subject of the invention consists of the expression vectors comprising a nucleotide sequence of the invention, and also the means required for its expression.

10 By way of an expression vector, mention may be made, for example, of plasmids, viral vectors of the vaccinia virus, adenovirus or baculovirus type, or bacterial vectors of the Salmonella, BCG or listeria type.

15 The expression "means required for the expression of a polypeptide or epitope" is intended to mean any means that makes it possible to obtain the peptide, such as in particular a promoter, a transcription terminator, an origin of replication and preferably a selection
20 marker.

The vectors of the invention can also comprise sequences required for targeting the peptides to specific cellular compartments. An example of targeting
25 may be the targeting to the endoplasmic reticulum obtained using targeting sequences of the type such as the leader sequence derived from the adenoviral E3 protein (Ciernik I.F., et al., The Journal of Immunology, 199, 162, 3915-3925).

30 The expression vectors of the invention can comprise either a single nucleotide sequence encoding any one of the polypeptides or epitopes of the invention, or at least two nucleotide sequences encoding different
35 epitopes.

The expression "at least two nucleotide sequences encoding different epitopes" is intended to mean either two nucleotide sequences encoding the following epitope

combinations: A9L/W9L, A9L/R9V, A9L/G9L, W9L/R9V, W9L/G9L and R9V/G9L, or three nucleotide sequences encoding the following epitope combinations: A9L/W9L/R9V, A9L/W9L/G9L and W9L/R9V/G9L, or four nucleotide
5 sequences encoding the four epitopes A9L/W9L/R9V/G9L, it being understood that the order of the nucleotide sequences is of little importance.

When the expression vectors of the invention comprise
10 several nucleotide sequences, said sequences can be directly linked to one another, or else linked via spacers or linkers that typically consist of small neutral molecules such as amino acids or amino acid mimetics that typically have a neutral charge under
15 physiological conditions.

By way of spacers, mention may be made of Ala or Gly residues or other neutral spacers consisting of non-polar amino acids or of neutral polar amino acids.
20

These spacer amino acids have at least one or two residues, and conventionally from 3 to 6 residues.

A subject of the invention is also the microorganisms
25 and the eukaryotic cells transformed with an expression vector of the invention.

When it is desired to obtain a composition of the invention containing at least two epitopes of the
30 invention, the microorganisms or eukaryotic cells are transformed with an expression vector containing at least two nucleotide sequences, or else they are co-transformed with at least two expression vectors containing a single nucleotide sequence, each vector
35 encoding an epitope of different type.

By way of examples of microorganisms that are suitable for the purposes of the invention, mention may be made of yeasts such as those of the following families:

Saccharomyces, *Schizosaccharomyces*, *Kluveromyces*,
Pichia, *Hanseluna*, *Yarrowia*, *Schwaniomyces* and
Zygosaccharomyces, *Saccharomyces cerevisiae*,
5 *Saccharomyces carlsbergensis* and *Kluveromyces lactis*
being preferred; and bacteria, such as *E. coli* and
those of the following families: *Lactobacillus*,
Lactococcus, *Salmonella*, *Streptococcus*, *Bacillus* and
Streptomyces.

10 By way of examples of eukaryotic cells, mention may be
made of cells originating from animals such as mammals,
reptiles, insects and equivalent. The preferred
eukaryotic cells are cells originating from the Chinese
hamster (CHO cells), from monkey (COS and Vero cells),
15 from baby hamster kidney (BHK cells), from pig kidney
(PK 15 cells) and from rabbit kidney (RK13 cells),
human osteosarcoma cell lines (143 B cells), HeLa human
cells lines and human hepatoma cell lines (of the Hep
G2 cell type), and also insect cell lines (for example,
20 *Spodoptera frugiperda* cell lines).

The host cells can be provided in cultures in
suspension or in a flask, or in tissue cultures or
organ cultures, and equivalent. The host cells can also
25 be transgenic animals.

The invention also relates to antibodies directed
against one of the polypeptides F' or against one of
the epitopes of the invention as defined above.

30 The antibodies according to the invention are either
polyclonal antibodies or monoclonal antibodies.

The abovementioned polyclonal antibodies can be
35 obtained by immunizing an animal with at least one
antigen of interest, followed by recovery of the

desired antibodies in purified form, by taking a serum sample from said animal and separating said antibodies from the other serum constituents, in particular by affinity chromatography on a column to which is
5 attached an antigen specifically recognized by the antibodies, in particular an antigen of interest.

The monoclonal antibodies can be obtained by the hybridoma technique, the general principle of which is
10 recalled hereinafter.

In a first step, an animal, generally a mouse (or cells in culture in the case of *in vitro* immunizations), is immunized with an antigen of interest, for which the B lymphocytes are capable of producing antibodies against
15 said antigen. These antibody-producing lymphocytes are then fused with "immortal" myeloma cells (murine in the example) to give hybridomas. The cells capable of producing a particular antibody and of multiplying indefinitely are then selected from the heterogeneous
20 mixture of the cells thus obtained. Each hybridoma is multiplied in the form of a clone, each one resulting in the production of a monoclonal antibody whose properties of recognition with respect to the antigen of interest may be tested, for example by ELISA, by
25 one- or two-dimensional immunoblotting, by immunofluorescence, or using a biosensor. The monoclonal antibodies thus selected are subsequently purified, in particular according to the affinity chromatography technique described above.

30 The polypeptides F' and epitopes of the invention are particularly useful for inhibition, prevention and treatment of the virus or of the infection of patients carrying the virus, which belong more particularly to
35 genotypes 1b and 3, such that their use for preparing a drug constitutes another subject of the invention.

The present invention also relates to a pharmaceutical composition, in particular a vaccine, containing, as

active substance, at least one of the polypeptides F' as defined above, or else at least epitopes as defined above, or else at least one nucleotide sequence as described above, placed under the control of elements
5 required for constitutive and/or inducible expression of said polypeptides or epitopes, or else at least one antibody as defined above, in combination with a pharmaceutically appropriate vehicle.

10 The expression "elements required for constitutive expression of the polypeptides or epitopes" is intended to mean a promoter ubiquitous or specific for eukaryotic cells.

15 By way of elements required for inducible expression of the polypeptides or epitopes, mention may be made of the regulatory elements of the *E. coli* operon for tetracycline resistance (Gossen M. et al., Proc Natl Acad Sci USA, 89: 5547-5551 (1992)).

20 Of course, those skilled in the art will readily determine the pharmaceutically appropriate vehicle and the amount of polypeptides, epitopes or antibodies to be used according to the constituents of the
25 pharmaceutical composition.

The amount and the nature of the pharmaceutically appropriate vehicle can be readily determined by those skilled in the art. They are chosen according to the
30 pharmaceutical form and the mode of administration desired.

The pharmaceutical compositions of the invention are suitable for oral, sublingual, subcutaneous, intra-
35 muscular, intravenous, topical, local, intratracheal, intranasal, transdermal, rectal, intraocular or intra-auricular administration, it being possible for said active principle to be administered in a unit form of administration.

The unit forms of administration may, for example, be tablets, gelatin capsules, granules, powders, injectable oral solutions or suspensions, transdermal patches, sublingual, buccal, intratracheal, intraocular, intranasal or intra-auricular administration forms, forms of administration by inhalation, topical, transdermal, subcutaneous, intramuscular or intravenous administration forms, rectal administration forms, or implants. For topical administration, creams, gels, ointments, lotions or eye lotions can be envisioned.

These pharmaceutical forms are prepared according to the usual methods in the fields under consideration.

Said unit forms contain a dosage so as to allow daily administration of 0.001 to 10 mg of active principle per kg of body weight, according to the pharmaceutical form.

There may be particular cases where higher or lower doses are appropriate; such doses do not depart from the context of the invention. According to the usual practice, the dosage appropriate for each patient is determined by the physician according to the method of administration and the weight and response of the patient.

According to another embodiment of the invention, the present invention also relates to a method of treating pathologies associated with the hepatitis C virus, which comprises the administration, to a patient, of an effective dose of a medicinal product of the invention.

Besides a therapeutic application, the invention also has a diagnostic application in the sense that the polypeptides, the nucleotide sequences encoding said polypeptides and the antibodies of the invention can be

used as binding partners in said assays.

The polypeptide and the antibodies of the invention can be used in immunoassays, such as the ELISA assay, and
5 the nucleotide sequences can be used in hybridization assays.

Examples of diagnostic methods comprise, without any implied limitation, blots, "sandwich" techniques,
10 competition techniques and PCR detection techniques, in particular those referred to as "real-time".

The invention also relates to a diagnostic composition for detecting and/or quantifying the hepatitis C virus,
15 comprising at least one of the polypeptides F' as defined above, at least one of the nucleotide sequences encoding said polypeptides, as defined above, or else at least one antibody as defined above.

20 Here again, those skilled in the art will readily determine the amount of polypeptides, nucleotide sequences or antibodies to be used according to the diagnostic technique used.

25 The invention also relates to a method for detecting and/or quantifying the hepatitis C virus in a biological sample taken from an individual who may be infected with said virus, such as plasma, serum or tissue, characterized in that it comprises the steps
30 consisting in:

- bringing said biological sample into contact with the antibodies of the invention under conditions that allow the formation of a complex between the virus
35 and the antibody, and
- detecting and/or quantifying the formation of said complex by any appropriate means.

The methods for detecting and/or quantifying the virus

are carried out using conventional techniques well known to those skilled in the art, and, by way of illustration, mention may be made of blots, "sandwich" techniques, competition techniques and PCR detection techniques, in particular those referred to as "real-time".

The invention also relates to the use of the compositions of the invention, for the *in vitro* diagnosis of the hepatitis C virus in a biological sample or specimen.

Finally, the invention relates to the use of the compositions of the invention, for preparing a vaccine composition.

The present invention will be understood more clearly from the following examples given only by way of non-limiting illustration, and also from Figures 1, 2 and 3 attached in the appendix, in which:

- Figure 1 represents the production of interferon gamma (IFN γ , white histograms) and of interleukin 10 (IL-10, black histograms) by mononuclear cells from 5 HCV-seropositive patients in response to the polypeptide F' of sequence SEQ ID No.2, this production being demonstrated by ELISpot,

- Figure 2 represents the production of interferon gamma (IFN γ , white histograms) and of interleukin 10 (IL-10, black histograms) by mononuclear cells from 3 patients (patient 5 HLA-A2,B18,B35, patient 4 HLA-A2, A24,B27,B62 and patient 6 HLA-A24,A69,B51) in response to the four epitopes A9L (SEQ ID No.177), W9L (SEQ ID No.234), R9V (SEQ ID No.281) AND G9L (SEQ ID No. 355), this production being demonstrated by ELISpot,

- Figure 3 represents the alignment of the consensus sequences of genotypes 1b (Figure 3A) and 3 (Figure 3B), with the A9L, W9L, R9V and G9L epitopes.

Example 1: Demonstration of an immune response against the polypeptides F'

5 A sample of approximately 30 ml of blood was taken, on an anticoagulant (EDTA), from 5 HCV-seropositive patients, and the mononuclear cells were purified on a Ficoll gradient.

10 Two hundred thousand cells thus purified were incubated in RPMI 1640 medium supplemented with 10% of fetal calf serum in the presence or absence of the polypeptide F' of sequence SEQ ID No.2 at a concentration of 1 µg/ml, for 24 h.

15 The cells were then transferred into PVDF ELISpot plates which had been preincubated either with an anti-IFNγ antibody or with an anti-IL-10 antibody according to the supplier's recommendations (Diaclone, Besançon, France), and incubated for a further 24 h at 37°C.

20 After incubation with a biotinylated antibody specific for IFNγ or for IL-10, followed by streptavidin-coupled alkaline phosphatase, the IFNγ-producing or IL-10-producing cells were revealed after degradation of the substrate (NBT/BCIP).

The blue-colored spots corresponding to the cytokine-producing cells were then counted using an automated system (Zeiss microscope, KS-Elispot program).

30 The results are given in Figure 1, in a graph representing the number of spot-forming cells (SFC) after deduction of the background noise (medium alone), per 10⁶ mononuclear cells (PBMCs), in the form of histograms (white histograms for the production of IFN gamma and black histograms for the production of IL-10). This graph also gives the status of the patients (NT for nontreated; R, responders; LTR, long-term responder) and also the viral genotype. The horizontal

dashed line represents the threshold of significance of the assay and the error bars correspond to the standard deviation between triplicates.

5 This figure clearly shows that the polypeptides of the invention induce an immune response through the production of IL 10, with or without production of IFN gamma.

10 **Example 2: Demonstration of an immune response with the T epitopes**

In this example, the procedure of Example 1 was repeated, the only difference being that the cells from
15 three patients (Pt 5, Pt 4 and Pt 6) were directly incubated in the presence of the A9L (SEQ ID No.177), W9L (SEQ ID No.234), R9V (SEQ ID No.281) and G9L (SEQ ID No.355) epitopes, in the ELISpot plates for 48 h.

20 The results are given in Figure 2, which consists of a graph showing histograms (white for interferon and black for IL10) representing the number of spot-forming cells (SFC) after deduction of the background noise (medium alone), per 10^6 mononuclear cells (PBMCs). This
25 graph also gives the HLAs to which the prediction relates, i.e. R9V and W9L were predicted to bind to the HLA-A2 molecule and G9L, W9L and A9L were predicted to bind to HLA-B7. The horizontal dashed line represents the threshold of significance of the assay and the
30 error bars correspond to the standard deviation between triplicates. ND means not determined.

Here again, this figure clearly shows that the epitopes of the invention induce an immune response through the
35 production of IL 10, with or without production of IFN gamma.